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EXAMINER	
MILLER, MARINA I	

ART UNIT	PAPER NUMBER
1631	

DATE MAILED: 03/08/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/891,793	ECKER ET AL.	
	Examiner	Art Unit	
	Marina Miller	1631	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *19 January 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *51-68* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *51-68* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Objections

Claims 51-68 are objected to because of the following reason: Claims 51-68 recite " a service" which is not clearly a statutory category. Yet, claims 51-68 are clearly directed to a method for providing a bioagent characterizing information. The examiner suggests amending the claims to be directed to a method. Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 51-68 were rejected in the Non-Final Office Action mailed 10/20/2004 as being vague and indefinite because the broad limitation "bioagent" makes the metes and bounds of the instant claims unclear.

Applicant amended claim 51 to recite "bacterial bioagent." The specification on p. 12 defines a "bioagent" as any organism, living or dead, or a nucleic acid derived from such an organism. In light of the applicant's amendment, the examiner interprets the "bioagent" of claim 51 to be an isolated nucleic acid from a bacteria or an amplification product of a gene (nucleic acid) that correlates to the nucleic acid isolated from the bacteria.

Claims 51-68 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 51 recites in step (a) a database of molecular masses obtained by amplification of bacterial nucleic acids with primers and, therefore step (a) recites a product by process. The limitation "obtained by amplification of bacterial nucleic acids ..." introduced into step (a) by the applicant's amendment does not structurally limit the product (*i.e.*, a database of molecular masses). It is unclear what limitation of a database(a product) is intended by the process and, therefore claim 51 is indefinite.

Claim 51 recites in step (b) interrogating the database with an identification query comprising molecular masses of a bioagent wherein masses are generated by amplification of variable regions of "a gene involved in ..." with primers flanking conserved regions. The claim limits values of a product (*i.e.*, molecular masses) by limiting the composition of the product (*i.e.*, "a gene involved in translation, replication," etc.). However, this limitation is not one that limits masses. It is unclear what limitation of the identification query is intended by the composition and, therefore claim 51 is indefinite.

Claim 51 recites a gene involved in translation, replication, etc. Claims 52-62 further limit claim 51 to a genewhich is DNA polymerase III, elongation factor TU, etc. It is not clear if applicant intends the gene to *encode* a DNA polymerase III, elongation factor TU, and other proteins recited in claims 52-62 or actually intends the gene to be a DNA polymerase protein *per se*, etc. Therefore, claims 52-62 are indefinite. For the purpose of further examination, the

examiner interprets "the gene is DNA polymerase III" as being a gene encoding proteins recited in claims 52-62.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 51, 65, and 67 are rejected under 35 U.S.C. 103(a) as being unpatentable over Muddiman, *Anal. Chem.*, 68:3705-3712 (1996) or Muddiman, *Anal Chem.*, 69:1543-1549 (1997), in view of Widjojoatmodjo, *J. Clin. Microb.*, 32(12):3002-3007 (1994).

Muddiman (1996) and Muddiman (1997) disclose a method comprising steps of (1) providing a database of calculated base compositions indexed to molecular masses of amplified nucleic acids of a bioagent [see p. 3710 and table 1 in Muddiman (1996) and p. 1544 and table 1 in Muddiman (1997)]; (2) interrogating the database with an identification query comprising measured molecular masses of an amplified nucleic acid of a bacterial bioagent [see table 1 in Muddiman (1996) and p. 1544 and table 1 in Muddiman (1997)]; and (3) delivering a response characterizing information for the bioagent [see p. 3711 and table 1 in Muddiman (1996) and p. 1544, 1546, and table 1 in Muddiman (1997)]. Muddiman (1996) and Muddiman (1997) also disclose amplification products obtained by using PCR primers directed to conserved portions of rRNA genes (see Muddiman (1996), p. 3707). Muddiman (1996) and Muddiman (1997) disclose that characterization information comprises a strain name [see table 1 in Muddiman (1996) and

table 1 and p. 1544 in Muddiman (1997)]. Muddiman (1996) discloses an amplification product of 89 bp.

Muddiman (1996) and Muddiman (1997) do not disclose an amplification product comprising a variable region of a gene flanked by conserved regions. Muddiman does not disclose a variable region with less than 5% identity among species.

Widjojoatmodjo discloses the amplification of a nonconserved (*i.e.*, variable) region of rRNA gene by using conserved primers flanking the region (p. 3006). Widjojoatmodjo discloses PCR patterns for 111 bacterial isolates from 40 species and 15 genera (table1). All Clostridium species gave species-specific patterns when variable regions were amplified by using conserved primers, *i.e.*, identity for any particular variable region among species was less than 5%.

It would have been obvious to one skilled in the art at the time of the invention to modify the method of Muddiman to interrogate a database with information obtained by amplifying a variable region of a gene by using primers directed to conserved regions of a gene, such as taught by Widjojoatmodjo, where the motivation would have been to determine the identity of bacteria without the need of a large panel of probes, as taught by Widjojoatmodjo, p. 3006.

Claims 52 and 60 are rejected under 35 U.S.C. 103(a) as being unpatentable over Muddiman, *Anal. Chem.*, 68:3705-3712 (1996) or Muddiman, *Anal Chem.*, 69:1543-1549 (1997), in view of Widjojoatmodjo, *J. Clin. Microb.*, 32(12):3002-3007 (1994), as applied to claim 51 above, and in view of Takahashi, *J. Antimicrobial Chemotherapy*, 41:49-57 (1998).

Muddiman (1996) or Muddiman (1997) and Widjojoatmodjo make claim 51 obvious, as set forth above.

Muddiman (1996) or Muddiman (1997) and Widjojoatmodjo do not disclose amplification of a gene encoding DNA topoisomerase.

Takahashi discloses amplification of variable regions (comprising mutations) of genes encoding DNA topoisomerase (GriA and GrlB) by using primers conserved to all isolates (*see* table 1 and p. 50-51).

It would have been obvious to one skilled in the art at the time of the invention to modify the method of Muddiman and Widjojoatmodjo to interrogate a database with information obtained by amplifying a DNA topoisomerase gene by using primers directed to conserved regions of the gene, such as taught by Takahashi, where the motivation would have been to determine mutations important for the acquisition of the quinolone resistance, as taught by Takahashi, p. 49.

Claims 52 and 54 are rejected under 35 U.S.C. 103(a) as being unpatentable over Muddiman, *Anal. Chem.*, 68:3705-3712 (1996) or Muddiman, *Anal Chem.*, 69:1543-1549 (1997), in view of Widjojoatmodjo, *J. Clin. Microb.*, 32(12):3002-3007 (1994), as applied to claim 51 above, and in view of Seshadri, *Infection and Immunity*, 67(11):6026-33 (1999).

Muddiman (1996) or Muddiman (1997) and Widjojoatmodjo make claim 51 obvious, as set forth above.

Muddiman (1996) or Muddiman (1997) and Widjojoatmodjo do not disclose amplification of a TU elongation factor gene.

Seshadri discloses cloning of bacterial TU elongation factor (p. 6027).

It would have been obvious to one skilled in the art at the time of the invention to modify the method of Muddiman and Widjojoatmodjo to interrogate a database with information obtained by amplifying a gene encoding TU elongation factor, such as taught by Seshadri, where the motivation would have been to elucidate translation machinery of the cell by using TU elongation factor because it is an important component of the machinery, as taught by Seshadri, p. 6030.

Claims 52 and 53 are rejected under 35 U.S.C. 103(a) as being unpatentable over Muddiman, *Anal. Chem.*, 68:3705-3712 (1996) or Muddiman, *Anal Chem.*, 69:1543-1549 (1997), in view of Widjojoatmodjo, *J. Clin. Microb.*, 32(12):3002-3007 (1994), as applied to claim 51 above, and in view of Liu, *Gene*, 172:105-109 (1996).

Muddiman (1996) or Muddiman (1997) and Widjojoatmodjo make claim 51 obvious, as set forth above.

Muddiman (1996) or Muddiman (1997) and Widjojoatmodjo do not disclose a DNA Pol III beta subunit encoding gene.

Liu discloses cloning and sequencing bacterial DNA Pol III beta subunit encoding gene (p. 106).

It would have been obvious to one skilled in the art at the time of the invention to modify the method of Muddiman and Widjojoatmodjo to interrogate a database with information obtained by amplifying a bacterial DNA Pol III beta subunit gene, such as taught by Liu, where the motivation would have been to study the major enzyme involved in DNA replication, as taught by Liu, p. 105.

Claims 52 and 55 are rejected under 35 U.S.C. 103(a) as being unpatentable over Muddiman, *Anal. Chem.*, 68:3705-3712 (1996) or Muddiman, *Anal Chem.*, 69:1543-1549 (1997), in view of Widjojoatmodjo, *J. Clin. Microb.*, 32(12):3002-3007 (1994), as applied to claim 51 above, and in view of Love, *Gene*, 166:179-180 (1995).

Muddiman (1996) or Muddiman (1997) and Widjojoatmodjo make claim 51 obvious, as set forth above.

Muddiman (1996) or Muddiman (1997) and Widjojoatmodjo do not disclose amplification of a gene encoding heat shock protein groEL.

Love discloses cloning of bacterial groEL using conserved primers (p. 179).

It would have been obvious to one skilled in the art at the time of the invention to modify the method of Muddiman and Widjojoatmodjo to interrogate a database with information obtained by amplifying a gene encoding bacterial groEL, such as taught by Love, where the motivation would have been to study involvement of groEL in the pathogenesis of infectious diseases, as taught by Love, p. 179.

Claims 52 and 56 are rejected under 35 U.S.C. 103(a) as being unpatentable over Muddiman, *Anal. Chem.*, 68:3705-3712 (1996) or Muddiman, *Anal Chem.*, 69:1543-1549 (1997), in view of Widjojoatmodjo, *J. Clin. Microb.*, 32(12):3002-3007 (1994), as applied to claim 51 above, and in view of Morse, *System. Appl. Microbiol.*, 19:150-157 (1996).

Muddiman (1996) or Muddiman (1997) and Widjojoatmodjo make claim 51 obvious, as set forth above.

Muddiman (1996) or Muddiman (1997) and Widjojoatmodjo do not disclose amplification of a RNA polymerase beta gene.

Morse discloses amplification of variable regions of a RNA polymerase beta gene by using conserved primers (p. 151).

It would have been obvious to one skilled in the art at the time of the invention to modify the method of Muddiman and Widjojoatmodjo to interrogate a database with information obtained by amplifying a RNA polymerase beta gene, such as taught by Morse, where the motivation would have been to identify conserved regions of the gene among different bacterial strains and to elucidate structure-function relationships for RNA polymerase beta genes from different species, as taught by Morse, p. 151.

Claims 52 and 58 are rejected under 35 U.S.C. 103(a) as being unpatentable over Muddiman, *Anal. Chem.*, 68:3705-3712 (1996) or Muddiman, *Anal Chem.*, 69:1543-1549 (1997), in view of Widjojoatmodjo, *J. Clin. Microb.*, 32(12):3002-3007 (1994), as applied to claim 51 above, and in view of Leif, *Eur. J. Biochem.*, 230:538-548 (1995).

Muddiman (1996) or Muddiman (1997) and Widjojoatmodjo make claim 51 obvious, as set forth above.

Muddiman (1996) or Muddiman (1997) and Widjojoatmodjo do not disclose a NADH dehydrogenase encoding gene.

Leif discloses identification of a bacterial NADH dehydrogenase encoding gene (p. 109).

It would have been obvious to one skilled in the art at the time of the invention to modify the method of Muddiman and Widjojoatmodjo to interrogate a database with information

obtained by amplifying a bacterial NADH dehydrogenase encoding gene, such as taught by Leif, where the motivation would have been to study the respiratory complex I of eukaryotes by using *E.coli* respiratory system as a model, as taught by Leif, p. 546.

Claims 52 and 59 are rejected under 35 U.S.C. 103(a) as being unpatentable over Muddiman, *Anal. Chem.*, 68:3705-3712 (1996) or Muddiman, *Anal Chem.*, 69:1543-1549 (1997), in view of Widjojoatmodjo, *J. Clin. Microb.*, 32(12):3002-3007 (1994), as applied to claim 51 above, and in view of Tong, *NAR*, 28(6):1447-1454 (2000).

Muddiman (1996) or Muddiman (1997) and Widjojoatmodjo make claim 51 obvious, as set forth above.

Muddiman (1996) or Muddiman (1997) and Widjojoatmodjo do not disclose a DNA ligase gene.

Tong discloses cloning of DNA ligase (p. 1448).

It would have been obvious to one skilled in the art at the time of the invention to modify the method of Muddiman and Widjojoatmodjo to interrogate a database with information obtained by amplifying a DNA ligase gene from *Aquifex aeolicus,* such as taught by Tong, where the motivation would have been to study ligases from different sources for the development of high sensitivity techniques for single pair discrimination, as taught by Tong p. 1447.

Claims 52 and 61 are rejected under 35 U.S.C. 103(a) as being unpatentable over Muddiman, *Anal. Chem.*, 68:3705-3712 (1996) or Muddiman, *Anal Chem.*, 69:1543-1549

(1997), in view of Widjojoatmodjo, *J. Clin. Microb.*, 32(12):3002-3007 (1994), as applied to claim 51 above, and in view of Martemyanov, *Prot. Expr. And Purif.*, 18:257-61 (2000).

Muddiman (1996) or Muddiman (1997) and Widjojoatmodjo make claim 51 obvious, as set forth above.

Muddiman (1996) or Muddiman (1997) and Widjojoatmodjo do not disclose an elongation factor G encoding gene.

Martemyanov discloses amplification of a bacterial elongation factor G encoding gene (p. 258).

It would have been obvious to one skilled in the art at the time of the invention to modify the method of Muddiman and Widjojoatmodjo to interrogate a database with information obtained by amplifying a bacterial elongation factor G encoding gene, such as taught by Martemyanov, where the motivation would have been to conduct a structural study of common components of protein biosynthesis systems such as elongation factors and ribosomes in all leaving cells, as taught by Martemyanov, p. 257.

Claims 52, 62, and 68 are rejected under 35 U.S.C. 103(a) as being unpatentable over Muddiman, *Anal. Chem.*, 68:3705-3712 (1996) or Muddiman, *Anal Chem.*, 69:1543-1549 (1997), in view of Widjojoatmodjo, *J. Clin. Microb.*, 32(12):3002-3007 (1994), as applied to claim 51 above, and in view of Herrmann, *J. Clin. Microbiol.*, 34(8):1897-1902 (1996).

Muddiman (1996) or Muddiman (1997) and Widjojoatmodjo make claim 51 obvious, as set forth above.

Muddiman (1996) or Muddiman (1997) and Widjojoatmodjo do not disclose amplification of RNAse P encoding gene and 95% identity of conserved regions.

Herrmann discloses amplification of RNAse P gene by using conserved primers (p. 1897-98). Herrmann also discloses 91-96% homology of 16S RNA sequences in Chlamydia species (p. 1900).

It would have been obvious to one skilled in the art at the time of the invention to modify the method of Muddiman and Widjojoatmodjo to interrogate a database with information obtained by amplifying a bacterial RNAse P gene and genes with high homology, such as taught by Herrmann, where the motivation would have been to use RNAse P genes or genes with high homology as a tool for the identification of bacteria and other organisms in clinical diagnostics and strain differentiation in studies of molecular epidemiology, as taught by Herrmann, p. 1897 and 1900.

Claims 63 and 64 are rejected under 35 U.S.C. 103(a) as being unpatentable over Muddiman, *Anal. Chem.*, 68:3705-3712 (1996) or Muddiman, *Anal Chem.*, 69:1543-1549 (1997), in view of Widjojoatmodjo, *J. Clin. Microb.*, 32(12):3002-3007 (1994), as applied to claim 51 above, and in view of Coli, U.S. Patent 6,018,713.

Muddiman (1996) or Muddiman (1997) and Widjojoatmodjo make claim 51 obvious, as set forth above.

Muddiman (1996) or Muddiman (1997) and Widjojoatmodjo do not disclose delivering the result via a network or the Internet.

Coli discloses a system and a method for reporting results of medical tests wherein a user can gain access to to a database and transform the results via a network including the Internet.

It would have been obvious to one skilled in the art at the time of the invention to modify the method of Muddiman and Widjojoatmodjo to access a database and to transform the results via a network, where the motivation would have been to improve test selection and result reporting via the global network, *i.,e.*, the Internet, as taught by Coli, col. 1-2.

Conclusion

No claim is allowed.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Marina Miller whose telephone number is (571)272-6101. The examiner can normally be reached on 8-5, M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ardin Marschel, Ph. D. can be reached on (571)272-0718. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Marina Miller
Examiner
Art Unit 1631

MM

MARJORIE A. MORAN
PRIMARY EXAMINER
Marjorie A. Moran
3/3/05